

# Lights! Camera! Special Effects!

The wizards at ILM are making the movies dazzle

Hollywood's magic moments used to be mostly quiet ones: Rick telling Sam to play it again in *Casablanca*, Charles Foster Kane muttering his dying "Rosebud" in *Citizen Kane*. The memorable screen moments of recent years are more, well, eye-catching. A fleet of rebel spaceships enters the Death Star for a climactic battle against the Empire's forces in *Return of the Jedi*. The shards of a stained-glass window are transformed into a sword-wielding knight in *Young Sherlock Holmes*. Runaway mine cars career at a breakneck pace through hair-breadth twists and turns in *Indiana Jones and the Temple of Doom*.

It might be called the "wow" school of filmmaking, and no one has mastered it better than Industrial Light & Magic, the special-effects division of George Lucas' Lucasfilm Ltd. Some moviegoers may miss the old days, when subtleties of character and story seemed to matter more. Indeed, American movies can no longer claim undisputed pre-eminence in the world of filmic art, as they could during the 1930s and '40s. But for sheer technical dazzle, U.S. filmmakers are clearly setting the international standard, with Industrial Light & Magic at the forefront.

Special effects are hardly new to movies, nor are they an exclusively American invention. The ground-breaking special-effects movie *A Trip to the Moon* was made in 1902 by a French filmmaker named Georges Méliès. Techniques were improved over the years in such land-

mark films as *King Kong* (1933) and Stanley Kubrick's *2001: A Space Odyssey* (1968). But most Hollywood studios had closed down their special-effects units by the mid-1970s, when Director Lucas set out to make a space adventure called *Star Wars*. To create the futuristic world he envisioned, Lucas set up his own shop in a Los Angeles warehouse, hired a crew of eager young technicians—and proceeded to change the look of movies forever.

"It was a big adventure at the time," says Lucas. "We really took a plunge into the unknown." After the astounding success of *Star Wars*, his special-effects group, dubbed Industrial Light & Magic, relocated in San Rafael, Calif., just north of San Francisco, and became a permanent operation. ILM devised the special effects not just for Lucas' three *Star Wars* epics, but for such Steven Spielberg hits as *E.T.*, *Poltergeist* and *Raiders of the Lost Ark*. Now ILM's handiwork seems to be everywhere. The company created the effects for six of last year's releases, among them *Cocoon* (for which ILM technicians won their seventh visual-effects Oscar), *Back to the Future*, *Young Sherlock Holmes* and *Explorers*. And that does not count smaller jobs on films like *Out of Africa*. (The train that wends its way through the African landscape in the opening credit sequence is actually a miniature built by ILM and inserted later into the scenic footage.)

ILM has competitors, most notably Boss Film Corp. (started by former ILM

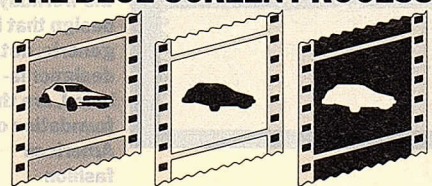
Special-Effects Supervisor Richard Edlund), which created the special effects for *Ghostbusters* and this summer's *Poltergeist II*. But for its combination of technical resources, expertise and sheer filmmaking pizzazz, ILM deserves that highest of compliments in the techno-'80s: state of the art. "They're a wonderful think tank," says Robert Zemeckis, director of *Back to the Future*. "One of the biggest tragedies in Hollywood is that no one puts money into research and development. ILM is trying to break new ground."

ILM's high-tech wonders are created in a surprisingly low-tech cluster of buildings in a suburban office park. A sign out front says THE KERNER COMPANY—a deception intended, company officials say, to keep away youngsters who used to rummage through the garbage looking for cast-off Darth Vaders and E.T.s. The ambience is casual: blue jeans and running shoes are ubiquitous, and a family spirit prevails. "It's a group effort rather than a search for personal glory," says George Joblove, who joined ILM last year to help develop a computer-graphics department. "There's a nice sense of community."

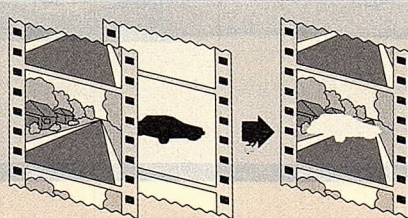
Activity at ILM is currently at high pitch. The unit is finishing the special effects on *Howard the Duck*, being produced by Lucasfilm for an August release, about a cigar-chomping duck from another planet who crash-lands near a punk bar in Cleveland. Also in the works are *Star Trek IV: The Voyage Home*, due out at Christmas; *The Golden Child*, an adventure-comedy starring Eddie Murphy; and—something new for ILM—a redesign of the rocket-ship ride at Disneyland, using *Star Wars*-like effects.

In one room, artists work on matte

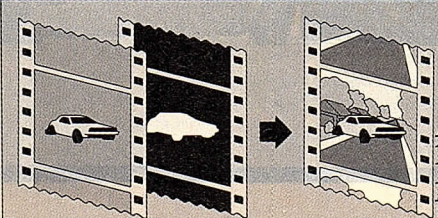
## THE BLUE-SCREEN PROCESS



1. The car is filmed against a blue background. This image is printed as a positive and negative silhouette.

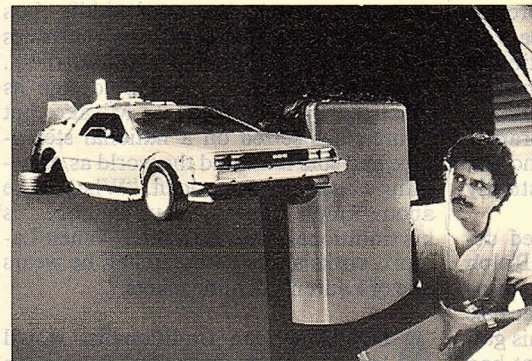
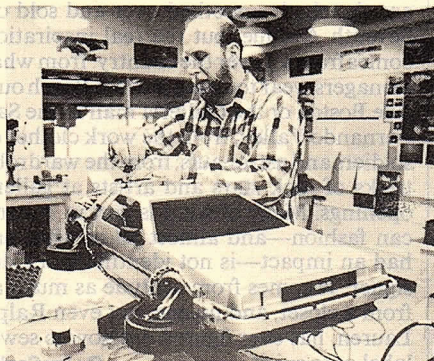


2. The background and car silhouette are printed together, leaving the car area unexposed.



3. The film is exposed again, using the shot of the car with the negative silhouette to complete the scene.

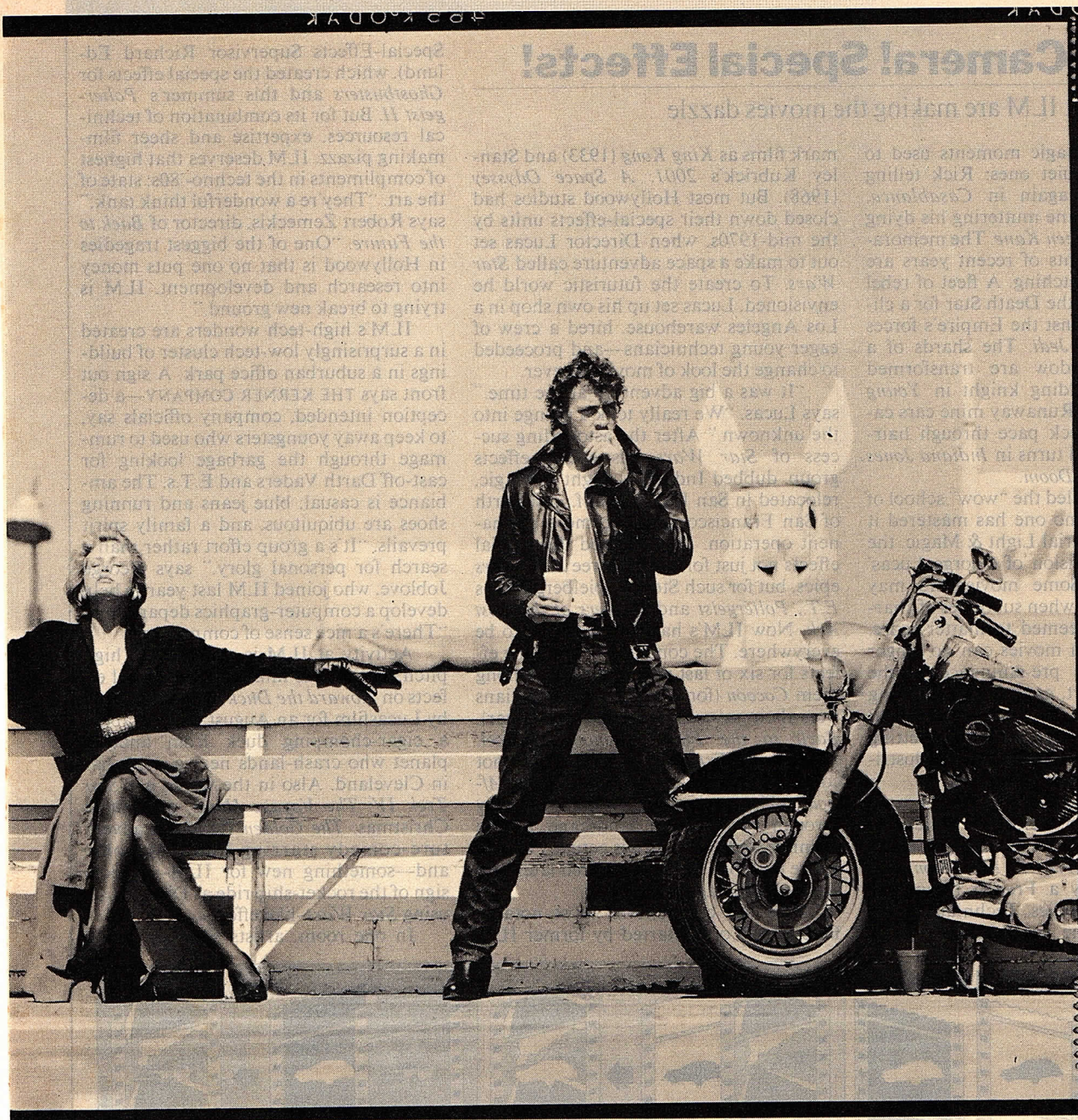
TIME Diagram by Joe Lertola



A MODEL DE LOREAN IS BUILT, PHOTOGRAPHED AND SENT *BACK TO THE FUTURE*

Making bicycles fly, bringing pastries to life and sending spaceships into battle





Hey, good lookin': the spirit of American sportswear comes right off the streets—and sometimes rides a Harley

The black leather motorcycle jacket is all function and no frills, but it has the resonance and irreverence of a homegrown classic

Boots, Ray-Bans, T shirt and Levi's complete the archetype. He's ready for a rumble, a romance—or maybe a fast change before he leaves for the office

"The whole denim philosophy": clothes that bring the weekend into the workday, design that is generic, not designer labeled, are the foundation of American fashion

leather blouson that is not derived in some way from the rumble-ready splendor of an American black leather motorcycle jacket. Paris' Claude Montana appears almost invariably in some combination of the same basic outfit: jeans, T shirt, a hooded sweatshirt and a nylon military jacket lined in phosphorescent orange. Montana may make some of the hottest duds on the runways, but he looks strictly made in the U.S.A.

If many of the more established designers around the world pick out Ralph Lauren as the designer they think of as "most American," that may be because Lauren has put his signature, and his galloping Polo logo, onto garments that had been in the national fashion vocabulary for years. From beach house to board-

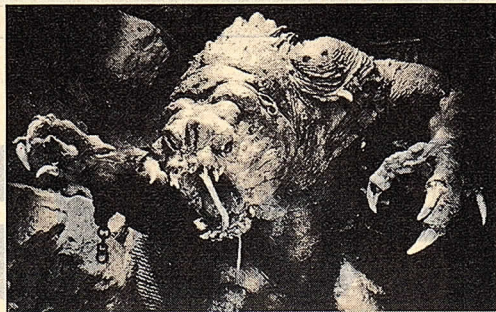
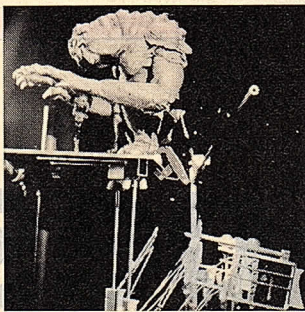
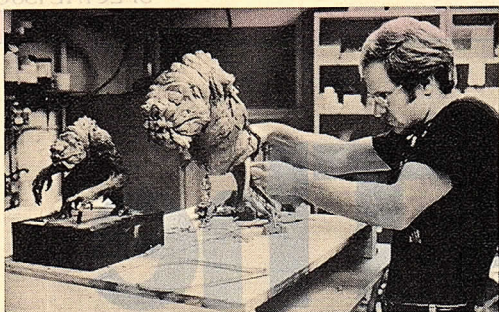
room, pinstripe to roll collar to penny loafer, Lauren codified and merchandised America's dearest dreams of middle-class elegance, then brokered the fantasies back to the market that inspired them. This has nothing to do with design as practiced by Kawakubo or Miyake, but Lauren has seized on a national stereotype and sold it around the world as something classically American. "What I like about Ralph Lauren," says Lacroix, "is his traditional American side." When Lacroix works at his Patou atelier, he wears one of Lauren's denim jackets.

**A** true American traditionalist would look elsewhere for the real foundation of American fashion: at the wrap-around drama of some Bausch & Lomb Ray-Bans,

at the democratic perfection of a simple Hanes T shirt. Ideas for American clothes are sketched, smoothed over and sold on Seventh Avenue, but the real inspiration comes from all over the country: from what teenagers wear to cruise Revere Beach outside Boston or the Galleria mall in the San Fernando Valley; from the work clothes of soldiers and astronauts; from the wardrobe tricks of rock stars and artists at gallery openings. Much of what is best in American fashion—and almost all of what has had an impact—is not identifiable by designer. It comes from attitude as much as from a closet, and no one, not even Ralph Lauren, has ever figured out how to sew a label onto spirit.

—By Jay Cocks.  
Reported by Elizabeth Rudolph/New York, with other bureaus





THE RANCOR PIT MONSTER IS CRAFTED AND MANIPULATED BY CABLES FOR *JEDI*

#### Youngsters rummage through the garbage looking for cast-off Darth Vaders and E.T.s

paintings that provide the fake back-grounds for many scenes (the outer-space vistas in *Star Wars*, for example, or the cavernous warehouse at the end of *Raiders of the Lost Ark*). In the model shop, workers craft detailed miniatures of such objects as the spaceship from *Cocoon* and the De Lorean car that flew through time in *Back to the Future*. The creature shop is the birthplace for most of the monsters and other grotesques that populate Lucas' fantasyland, from the Rancor Pit monster in *Return of the Jedi* to the yet-to-be-unveiled Howard the Duck.

Much of ILM's trickery is aimed at making these inanimate figures appear to move and act. In some cases, movement is simulated by stop-motion photography (the same technique that gave life to the original King Kong). The object is photographed one frame at a time and moved manually a tiny bit for each shot; when the film is projected at normal speed, the figure appears to be in action. Today, however, creatures can also be manipulated by computer-controlled motors in an ILM innovation known as "go-motion," which produces more realistic movement.

Creatures, spaceships and other objects are inserted into the action of the film by means of the blue-screen process. The figure is photographed against a blue background and then combined in an optical printer with the scene into which it will be placed. This procedure must be repeated each time a new element is added to the scene. The pastry creatures that came to life in *Young Sherlock Holmes*, for example, were hand-manipulated rod puppets, each shot individually and added

one by one in as many as twelve layers. For a brief shot of a space battle in *Return of the Jedi*, 63 layers were required. This and other complex scenes are made possible by a computer-driven camera developed by ILM that can repeat the same motion over and over so that new elements can be added with great precision.

**C**omputers are also being used to create entire images from scratch. For effects like the stained-glass man in *Young Sherlock Holmes*, all the visual elements of the figure—size, shape and surface characteristics—are fed into a computer, along with such data as camera angles and light sources. The computer then uses this information to construct an image. Simple geometrical shapes are relatively easy to create, but the process is far more difficult for complicated figures. The stained-glass man, for instance, took four people some four months to create.

ILM technicians are accustomed to seeing months of effort speed by in just a few minutes of screen time. Kenneth Smith, who operates the optical printer, estimates that he and his co-workers spent eight months creating just 3½ minutes of special effects for *E.T.* like the bicycles that flew through the air at the film's end. "I compare it to working on a cathedral," he says. "I'm just a stone mason working on a gargoyle in a corner. I want to make the best one I can, of course. But I just wish they'd use more gargoyles."

Despite its high-tech tools, ILM uses homey techniques as well. Clouds might be simulated by wads of cotton, the dirt on a remote planet by a pile of cork. The

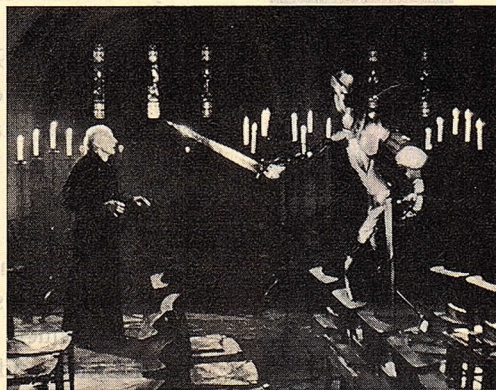
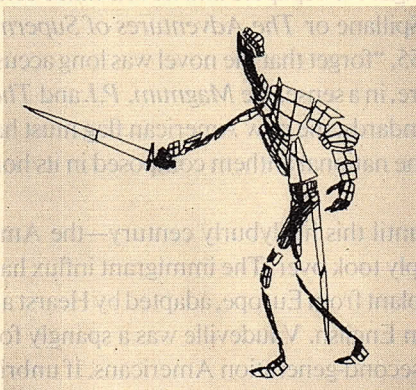
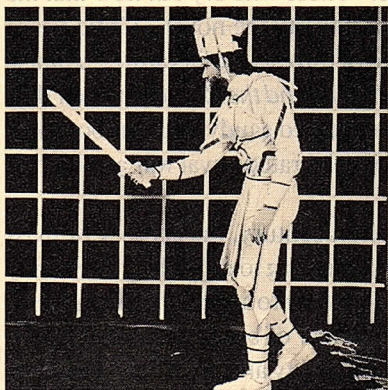
walls of the mine in *Indiana Jones* were made of scrunched-up aluminum foil, spray-painted to look like rocks. "We have no commitment to using the most sophisticated techniques," says Warren Franklin, ILM's general manager. "We go with what works."

The challenge is finding new things that work. Franklin estimates that ILM takes on only about one-third of the movies it is offered and looks for "projects that we think will stretch us and offer something new." Technicians are generally assigned to teams that remain with a film for its duration, thus fostering a sense of creative involvement in the project. "The value of this place is in its people," says Franklin, "not in its hardware."

Yet some contend that hardware too often takes center stage in ILM films and that the familiar "ILM look" is too cold and technology-driven. Others claim that the spirit of innovation is waning as the company becomes bigger and more successful. "A lot of wild, rebellious enthusiasm seems to be palling a bit, for better and for worse," says Lucas. "While it's reassuring to see the company becoming more stable and professional, it's a challenge to keep things fresh and alive."

But to critics who fear that ILM-style effects are driving out more traditional movie values, like characters and plots, Lucas is unsympathetic. "Special effects are just a way of visualizing something on screen," he asserts. "They have expanded the limits of storytelling enormously. ILM is a wonderful tool that allows the imagination to run wild."

—By Richard Zoglin.  
Reported by Elaine Dutka/Los Angeles



AN ACTOR POSES, A COMPUTER SKETCHES, AND THE STAINED-GLASS MAN EMERGES

"Special effects," says Lucas, "have expanded the limits of storytelling enormously"



# Pop Goes The Culture

A national knack for the quick, the vivid, the exuberant

World-wide, a "perceived way of life embedded in each bottle"



*Dynasty's* glitzy vision of ruling-class mischief

dull, gray, Spenglerian day, and the view is altogether different. Alarming, appalling, totally awesome. The critic Dwight Macdonald called pop culture a spreading ooze back in the 1950s, when Sylvester Stallone was still just a boy. Today America's righteous pop thug is huge, ubiquitous, swaggering from one medium into the next and the next: he is a movie warrior, he is a TV cartoon character, he is a plastic doll, he is a music-video creature and now, in candy racks all over America, he is chewing gum—Rambo black flak, jagged, black raspberry bits packed in foil pouches and meant to resemble shrapnel.

The U.S. has a knack for concocting and consuming entertainments that are quick, vivid, exuberant. Razzmatazz is a plentiful U.S. natural resource, like oil but with no OPEC competitors. Americans are pop-culture vultures, profligate in the money and time they devote to making themselves giggle and choke up on cue, ooh and aah en masse. Why is it that Americans make slick movies and snappy songs and every kind of TV show so relentlessly, so effectively, so—well, well?

What is it about the works of Howard Hawks (*The Big Sleep*, *Bringing Up Baby*), Chuck Jones (Bugs Bunny cartoons), Phil Spector (The Ronettes, The Righteous Brothers) and Aaron Spelling (*The Love Boat*, *Dynasty*) that make them unmistakably American artifacts? To a good part of the rest of the world, the U.S. is nothing but its global pop gush. Not the Bill of Rights, not Mary Cassatt, not George Balanchine but Madonna, *The A-Team* and Sidney Sheldon. The respectable pieties are correct: sure, America is the land of freedom and the land of opportunity. But it is perhaps more lovably the land of great tap dancing and terrific special effects, the land of oomph.

No wonder. The nation and the proto-pop media were invented more or less simultaneously only two centuries ago. Newspapers and novels made sense. "Those who cry out now that the work of a Mickey Spillane or *The Adventures of Superman* travesty the novel," Critic Leslie Fiedler noted in 1955, "forget that the novel was long accused of travesty literature." *Pamela* and *Tom Jones* were, in a sense, the *Magnum*, *P.I.* and *The Young and the Restless* of their day. By 18th century standards, the new American flag must have seemed gaudy and flamboyant—patriotic pop; and the national anthem composed in its honor celebrated naval war as a kind of giddy pageant.

But it was not until this hurlyburly century—the American century, the century of mass man—that pop simply took over. The immigrant influx had something to do with it. The funny papers were a transplant from Europe, adapted by Hearst and Pulitzer to appeal to readers freshly or barely fluent in English. Vaudeville was a spangly folk theater of bold strokes that had to entertain first- and second-generation Americans. If unbridled vitality and give-'em-what-they-want instincts were immigrant additives to the cultural mix, it was technological innovation that

It may be the ultimate instance of American mixed feelings. Our popular culture? Spiffy, spectacular: Billie Holiday songs, Krazy Kat, Preston Sturges movies, Ernie Kovacs, the Four Tops, *The Mary Tyler Moore Show*, Bob Dylan, *E.T.*, even blue jeans, Whoppers and soda pop. But ask again, on a

